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Letter to the Editor

Vocal fold palsy after vaccination against SARS-CoV-2[☆]**Parálisis de cuerda vocal tras vacunación contra el SARS-CoV-2.**

Dear Editor:

Vaccines against the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) are recommended by scientific societies due to their safety and efficacy. However, it is important to be aware of their potential adverse effects.

The onset of cranial mononeuritis multiplex and polyneuritis following the administration of vaccines against SARS-CoV-2 has recently been described, with a greater number of reports on facial nerve disorders (7th pair).¹ In case of involvement of the vagus nerve (10th pair) or its branches, the manifestations are not so evident and involve the need for a clinical suspicion that makes reaching a diagnosis more difficult. Dysphonia, dysphagia, or cough may reflect a unilateral laryngeal movement alteration, while bilateral involvement could manifest with acute dyspnea requiring a tracheotomy. As published by the Center for Disease Control and Prevention (CDC), the adverse events notified in relation to the administration of the vaccine against SARS-CoV-2 include over 15,921 reports on a greater or lesser degree of post-vaccination facial palsy, although its causality² has not been demonstrated and its incidence is equivalent to that associated with the influenza vaccine.³

As for post-vaccination vocal cord palsy, there are very few publications on this entity⁴ and none specifically concerning vaccination against SARS-CoV-2. As of the date of this letter, the CDC has reported 35 mobility disorders in relation to vaccines against SARS-CoV-2. The European Database of Suspected Adverse Drug Reaction Reports (EudraVigilance System) has notified 36 cases of vocal palsy, either in combination with other mononeuropathies or not, and the Spanish Agency of Medicines and Medical Devices (AEMPS, *Agencia Española de Medicamentos y Productos Sanitarios*) has notified two disorders of the 10th cranial nerve. In our site, we documented two cases of vocal cord mobility alterations associated with focal neuritis following the administration of messenger ribonucleic acid (mRNA) vaccine BNT162b2.

Case 1: This was a 55-year-old woman, without a history of the 2019 coronavirus disease (COVID-19), who presented with sudden-onset dysphonia and dysphagia to liquids six days after receiving the second dose of the vaccine. In the Emergency Care Department, the patient was diagnosed with right vocal cord palsy associated with severe glottic insufficiency. No alterations were detected in the cervicothoracic or cranial computed tomography (CT) scans performed. The emergency was managed with a 15-day

course of prednisone 1 mg/kg/day following a descending dosage regimen, with no improvement being observed. A muscle examination performed with a laryngeal electromyography three months later showed a neurogenic pattern with motor unit potentials of polyphasic morphology compatible with recent reinnervation in the right thyroarytenoid muscle. Moreover, a laryngeal endoscopy revealed evidence of partial recovery.

Case 2: The patient was a 59-year-old man, with no history of COVID-19 either, who, four days after receiving the first dose of the vaccine, visited his local healthcare center with a clinical picture of odynophagia and decubitus dyspnea that was oriented as pharyngotonsillitis. His symptoms progressed with dysphonia and left facial mobility alterations, owing to which he visited the Emergency Care Unit, where he was diagnosed with grade III left facial and left vocal cord palsy. Both a cerebral magnetic resonance imaging (MRI) scan and a cervicothoracic CT scan showed no alterations. He was consequently prescribed a 15-day course of prednisone 1 mg/kg/day following a descending dosage regimen and a 7-day course of valaciclovir 500 mg/12 h. His vocal palsy and feeling of pharyngeal irritation persisted three months later. An electromyography showed denervation and a deficient neurogenic pattern in the orbicularis oris muscle of the lips, thus confirming the existence of involvement of the 7th cranial pair, as well as slightly deficient pattern of motor unit potentials of increased amplitude and the presence of polyphasic reinnervation in the cricothyroid and thyroarytenoid muscles, compatible with ipsilateral laryngeal involvement.

Vaccines have shown to cause an increase in cranial neuropathies, albeit with a very low incidence and a usually satisfactory functional recovery, owing to which their use is not discouraged. Adjuvant treatments used to improve their efficacy, such as heat-labile enterotoxin, might be related to the onset of these neuropathies. Some authors propose that, due to molecular mimicry, similar elements present in certain pathogens contained in viruses or vaccines and human proteins would trigger an autoimmune inflammatory response that could target certain structural proteins in peripheral nerves.⁵

Both cases were reported to the AEMPS according to the established protocol. In the first case, the symptoms appeared six days after the administration of the second dose of the vaccine, whereas, in the second case, the symptoms appeared between 4 and 14 days after the administration of the first dose. These data are consistent with those published for the influenza vaccine,⁴ although the time of onset is lower than the 30 days described in some papers. The causality algorithm of the Spanish Pharmacovigilance System determined that these were both possible reactions to the vaccine (+4).

Further studies are required to determine whether there is causality between vaccination and vocal cord palsy, as well as to identify specific targets of the immune response generated.

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Conflicts of interest

The authors of this paper report no conflicts of interest.

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